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(DC-03090)

PATENT APPLICATION  
09/955,683

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Clint H. O'Connor et al.
Serial No.:	09/955,683
Date Filed:	September 19, 2001
Group Art Unit:	2142
Examiner:	Harrell, Robert B.
Title:	<b>A SYSTEM AND METHOD FOR STRATEGIC POWER SUPPLY SEQUENCING IN A COMPUTER SYSTEM WITH MULTIPLE PROCESSING RESOURCES AND MULTIPLE POWER SUPPLIES</b>

**MAIL STOP – APPEAL BRIEF - PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REPLY BRIEF**

In furtherance of the Appeal Brief filed on June 29, 2006 (the “*Brief*”) and responsive to the Examiner’s Answer mailed October 2, 2006 (the “*Answer*”), Appellants respectfully submit this Reply Brief.

**REMARKS**

**Claim 1**

The rejection of Claim 1 is improper because the reference does not teach expressly or inherently **adjusting power supplies to optimize power consumption**. The Examiner

focuses the Answer on the claim language “optimizing,” but neglects to indicate how the cited reference expressly or inherently teaches optimizing by adjusting power supplies. The Examiner cannot do so because Fung does not teach expressly or inherently controlling the power supplies themselves for purposes of optimizing power consumption.

Appellants recognize that Fung discusses controlling the voltage level supplied to a CPU for purposes of controlling power consumption. Fung, for example, describes a “Mode 2” operation in which the CPU clock frequency and core voltage are reduced to reduce power consumption. See, e.g., Fung, column 38, lines 20-41. Appellants submit, however, that Fung’s disclosure of controlling a core voltage supplied to a CPU does not anticipate a “power management engine operable to adjust the power supplies to optimize power consumption” because Fung does not teach adjusting the power supplies themselves to achieve its Mode 2 state. Instead, Fung teaches the use of a voltage regulator intermediate between Fung’s power supplies and Fung’s CPUs. Fung’s CPUs or power management unit provide control signals to the voltage regulator that control the core voltage that operates the CPUs. See, e.g., Fung FIG 10 where power management unit (PMU) 332 or CPU 330 generate Vcc CPU CRTL signal 322, which is provided to Voltage Regulator 324 to produce CPU Core Voltage.

Fung’s teaching of controlling the signal provided to a voltage regulator for purposes of controlling the core voltage to a CPU does not anticipate Claim 1’s recitation of adjusting power supplies because neither Fung’s CPU nor its PMU is taught as adjusting Fung’s power supplies.

Appellant is further aware that Fung describes a management module that manages Fung’s power supplies. See, e.g., Fung at column 29, line 65 through column 30, line 11. It is clear, however, the Fung’s management module does not control power supplies for purposes of optimizing power consumption. Instead, Fung’s management module monitors for power supply failures. When an alarm or fail condition is detected for any power supply module, an email or SNMP alert message is sent to the management module, which can respond by cycling a power supply or shutting it down. See, e.g., Fung at column 30, lines 5-11. Fung’s teaching of a management module that monitors power supplies for failure alerts and shuts down a failing power supply in response to detecting an alert, does not anticipate

Claim 1 because Fung's management module does not adjust power supplies to optimize power consumption.

To the extent that the Examiner construes the claim term "optimize" to read on Fung's teaching of a management modules responding to a failure alert by shutting down a power supply, Appellants respectfully submit that the construction is inconsistent, not only with the definition of optimization with which those skilled in the field would associate it, but with the use of the term by Fung itself. For example, whereas Fung refers to optimization in its description of the power/performance tradeoffs contemplated by its power management control policy, see, e.g., Fung column 36, lines 24-46, Fung does not use the word in conjunction the management module shutting down a failed power supply, see, e.g., column 28, lines 26-34. Appellants respectfully submit that an examiner cannot construe a term so broadly that it negates the use of the term by the reference upon which the examiner is relying.

Thus, Fung describes a power management unit that optimizes power consumption, but not by controlling the power supplies. Fung also describes a management module that manages power supplies, but not to optimize power consumption. Claim 1 recites a power management engine that adjusts power supplies to optimize power consumption. The claim, therefore, recites both the optimization of power consumption by controlling the power supplies. It is not sufficient for purposes of an anticipation rejection that the reference teaches a optimizing power management unit and a different management unit that shuts down power failing power supplies because the reference does not teach either expressly or inherently the element as claimed. By way of analogy, for example, a claim reciting a folding widget is not anticipated by a reference that discloses a non-folding widget and a folding gizmo.

### **Claim 12**

The rejection of Claim 12 is improper because the reference does not teach expressly or inherently **adjusting the number of power supplies to satisfy a change in processing resources**. Appellants note initially that the Examiner indicates Claim 12 as not teaching above Claim 1. To the extent that the Examiner's comment can be taken as meaning that the

elements of Claim 12 and Claim 1 are the same, Appellants respectfully disagree. Claim 12 recites determining if a change in operating resources requires a power supply change and, if so, adjusting the number of operating power supplies to satisfy the change in processing resources.

The Examiner's answer states that Fung teaches adjusting the number of operating power supplies following receipt of a demand requirement "among other things such as time of day, server loads, etc." Citing column 33, lines 33-46. The cited portion of Fung reads as follows:

Specific policies that optimize or near-optimize the combination of server performance and power conservation may be determined empirically during initial installation and operational phases as they will likely depend upon the content served, the variation of server loading as a function of time of day, advertising or promotions, average server loading, amount of over-provisioning, minimum quality of service requirements, power consumption of server modules versus content served, and other factors associated with server operation. The policies may also be modified according to the particular physical and/or electronic or logical structure of the servers. Even different CPU technologies may suggest different policies.

Appellants submit that the cited passage is silent with respect to determining if a change in operating resources requires a power supply change and adjusting the number of operating power supplies accordingly. The cited passage, for example, does not disclose either expressly or inherently adjusting the number of power supplies. In fact, the cited passage does not refer to power supplies at all. Applicants submit that the Examiner has glossed over the claim term "power supplies" in an effort to conform the cited reference to the rejection that the Examiner is attempting to defend. When subjected to the bright light of the current appeal, however, the Examiner's rejection is clearly exposed as improper for failing to cite a reference that teaches all claim elements.

### **Claim 22**

The rejection of Claim 22 is improper because the reference does not teach expressly or inherently **adjusting the number of power supplies to satisfy a predicted change in processing resources**. The Examiner's entire support for the anticipation rejection of Claim

22 is found in column 67, line 63, where Fung refers to “a predicted decrease in sever load.” Assuming for the sake of this discussion that Fung’s disclosure of a monitor to indicate a predicted decrease in load, Appellants submit, nevertheless, that Claim 22 is not anticipated because the reference does not teach either expressly or inherently adjusting the number of power supplies. To the contrary, the list of embodiments presented in the cited portion of Fung recite the opposite of adjusting the number of power supplies. Specifically, the embodiment cited by the Examiner (embodiment number 38) explicitly states that it depends on embodiment number 15, which explicitly states that it depends on embodiment number 3, which explicitly states that it depends on embodiment number 2.

Appellants submit that none of the embodiments explicitly being relied upon recites adjusting the number of power supplies. In fact, the embodiments that depend on embodiment 15 clarify that Fung teaches maintaining the number of power supplies. For example, whereas Fung’s embodiment number 26 recites an embodiment where a third clock frequency (corresponding to a third power consumption mode) is zero or turned off, Fung does not recite an embodiment where a third power supply voltage is zero or turned off. To the contrary, Fung recites in embodiment 28 an embodiment where the third mode is characterized by maintaining a processor core voltage to maintain processor state. In other words, precisely where it would have been most logical to recite an embodiment in which a core voltage is zero (i.e., immediately following the disclosure of an embodiment where the core clock frequency is zero), Fung specifically recites an embodiment where the core voltage is maintained at a specified level sufficient to maintain processor state. Moreover, even if Fung did describe an embodiment in which the core voltage were zero in the third mode, Fung still did not disclose where the core voltage of zero was achieved by controlling the power supplies themselves as opposed to the voltage regulator that supplies the core voltage to the CPUs as discussed above. Accordingly, Appellants maintain that Fung does not disclose adjusting the number of power supplies in response to a predicted change in load demand.

### SUMMARY

Appellants respectfully request the Board to reverse the final rejections and instruct the Examiner to issue a Notice of Allowance with respect to all pending claims.

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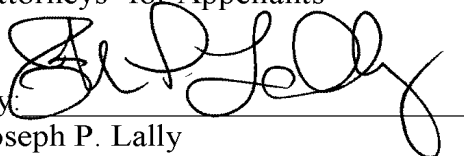
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Although Appellants believe no fees are due, the Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 02-0383 of Baker Botts L.L.P.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Applicants' attorney, Joseph Lally, at 512.322.2680.

Respectfully submitted,

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